

**Claim Amendments**

1-32. (canceled)

33. (currently amended) ~~The~~ A zinc-containing optical glass ~~according to claim 30, wherein the~~ with a refractive index ( $n_d$ ) ~~is~~ being in the range of from about 1.56 to about 1.63 and ~~the an~~ Abbe number ( $v_d$ ) ~~is~~ being in the range of from about 42 to about 52, ~~and said zinc-containing optical glass comprises~~ comprising, on an oxide basis, the composition of:

<u>Material</u>	Percentage <u>by weight</u>
SiO <sub>2</sub>	40 - 55
ZnO	26 - 41
PbO	1 - 16
sum of ZnO+PbO	31 - 48
Li <sub>2</sub> O	0 - <3
Na <sub>2</sub> O	0 - 12
K <sub>2</sub> O	0 - 10
sum of Li <sub>2</sub> O+Na <sub>2</sub> O+K <sub>2</sub> O	≥2
F	0 - 3
MgO	0 - 6

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CaO	0 - <5
SrO	0 - 6
BaO	0 - <0.9
B <sub>2</sub> O <sub>3</sub>	0 - <1
Al <sub>2</sub> O <sub>3</sub>	0 - <1.5
ZrO <sub>2</sub>	0 - <2.

34. (currently amended) The zinc-containing optical glass according to claim ~~30~~ 33, wherein the refractive index ( $n_d$ ) is in the range of from about 1.60 to about 1.63 and the Abbe number ( $v_d$ ) is in the range of from about 43 to about 47, and said zinc-containing optical glass comprises, on an oxide basis, the composition of:

<u>Material</u>	<u>Percentage</u> <u>by weight</u>
SiO <sub>2</sub>	40 - 47
ZnO	32 - 41
PbO	5 - 14
sum of ZnO+PbO	40 - 48
Li <sub>2</sub> O	0 - <3
Na <sub>2</sub> O	0 - 12
K <sub>2</sub> O	0 - 10

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sum of $\text{Li}_2\text{O}+\text{Na}_2\text{O}+\text{K}_2\text{O}$	$\geq 2$
F	0 - 3
MgO	0 - 6
CaO	0 - <5
SrO	0 - 6
BaO	0 - <0.9
$\text{B}_2\text{O}_3$	0 - <1
$\text{Al}_2\text{O}_3$	0 - <1.5
$\text{ZrO}_2$	0 - <2

35-44. (canceled)

45. (new) A zinc-containing optical glass, suitable for use as an optical element, with a refractive index ( $n_d$ ) being in the range of from about 1.52 to about 1.66 and an Abbe number ( $v_d$ ) being in the range of from about 35 to about 54;

said zinc-containing optical glass consisting of, on an oxide basis, the composition of:

<u>Material</u>	<u>Percentage by weight</u>
$\text{SiO}_2$	38 - 58
ZnO	0.3 - 42
PbO	0 - <30

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sum of ZnO+PbO	20 - 55
Li <sub>2</sub> O	0 - <3
Na <sub>2</sub> O	0 - 14
K <sub>2</sub> O	0 - 12
sum of Li <sub>2</sub> O+Na <sub>2</sub> O+K <sub>2</sub> O	≥2
F	0 - 3
MgO	0 - 6
CaO	0 - <5
SrO	0 - 6
BaO	0 - <0.9
B <sub>2</sub> O <sub>3</sub>	0 - <1
Al <sub>2</sub> O <sub>3</sub>	0 - <1.5
ZrO <sub>2</sub>	0 - <2

≥0% by weight of at least one refining agent.

46. (new) The zinc-containing optical glass according to claim 45, wherein the refractive index ( $n_d$ ) is in the range of from about 1.54 to about 1.64 and the Abbe number ( $v_d$ ) is in the range of from about 40 to about 52, and said zinc-containing optical glass consists of, on an oxide basis, the composition of:

<u>Material</u>	Percentage
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	<u>by weight</u>
SiO <sub>2</sub>	39 - 54
ZnO	12 - 41
PbO	6 - 22
sum of ZnO+PbO	31 - 52
Li <sub>2</sub> O	0 - <3
Na <sub>2</sub> O	0 - 13
K <sub>2</sub> O	0 - 11
sum of Li <sub>2</sub> O+Na <sub>2</sub> O+K <sub>2</sub> O	≥2
F	0 - 3
MgO	0 - 6
CaO	0 - <5
SrO	0 - 6
BaO	0 - <0.9
B <sub>2</sub> O <sub>3</sub>	0 - <1
Al <sub>2</sub> O <sub>3</sub>	0 - <1.5
ZrO <sub>2</sub>	0 - <2

≥0% by weight of at least one refining agent.

47. (new) The zinc-containing optical glass according to claim 45, wherein the refractive index ( $n_d$ ) is in the range of from about

1.56 to about 1.63 and the Abbe number ( $V_d$ ) is in the range of from about 42 to about 52, and said zinc-containing optical glass consists of, on an oxide basis, the composition of:

<u>Material</u>	<u>Percentage</u> <u>by weight</u>
SiO <sub>2</sub>	40 - 55
ZnO	26 - 41
PbO	1 - 16
sum of ZnO+PbO	31 - 48
Li <sub>2</sub> O	0 - <3
Na <sub>2</sub> O	0 - 12
K <sub>2</sub> O	0 - 10
sum of Li <sub>2</sub> O+Na <sub>2</sub> O+K <sub>2</sub> O	≥2
F	0 - 3
MgO	0 - 6
CaO	0 - <5
SrO	0 - 6
BaO	0 - <0.9
B <sub>2</sub> O <sub>3</sub>	0 - <1
Al <sub>2</sub> O <sub>3</sub>	0 - <1.5

ZrO<sub>2</sub> 0 - <2

≥0% by weight of at least one refining agent.

48. (new) The zinc-containing optical glass according to claim 45, wherein the refractive index ( $n_d$ ) is in the range of from about 1.60 to about 1.63 and the Abbe number ( $v_d$ ) is in the range of from about 43 to about 47, and said zinc-containing optical glass consists of, on an oxide basis, the composition of:

<u>Material</u>	<u>Percentage</u> <u>by weight</u>
SiO <sub>2</sub>	40 - 47
ZnO	32 - 41
PbO	5 - 14
sum of ZnO+PbO	40 - 48
Li <sub>2</sub> O	0 - <3
Na <sub>2</sub> O	0 - 12
K <sub>2</sub> O	0 - 10
sum of Li <sub>2</sub> O+Na <sub>2</sub> O+K <sub>2</sub> O	≥2
F	0 - 3
MgO	0 - 6
CaO	0 - <5

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SrO	0 - 6
BaO	0 - <0.9
B <sub>2</sub> O <sub>3</sub>	0 - <1
Al <sub>2</sub> O <sub>3</sub>	0 - <1.5
ZrO <sub>2</sub>	0 - <2

≥0% by weight of at least one refining agent.

49. (new) The zinc-containing optical glass according to claim 45, wherein the refractive index ( $n_d$ ) is in the range of from about 1.57 to about 1.59 and the Abbe number ( $V_d$ ) is in the range of from about 48 to about 52, and said zinc-containing optical glass consists of, on an oxide basis, the composition of:

<u>Material</u>	<u>Percentage</u> <u>by weight</u>
SiO <sub>2</sub>	41 - 50
ZnO	30 - 40
PbO	0 - 1
sum of ZnO+PbO	31 - 41
Li <sub>2</sub> O	0 - <3
Na <sub>2</sub> O	0 - 11
K <sub>2</sub> O	0 - 10



sum of $\text{Li}_2\text{O}+\text{Na}_2\text{O}+\text{K}_2\text{O}$	$\geq 2$
F	0 - 3
MgO	0 - 6
CaO	0 - <5
SrO	0 - 6
BaO	0 - <0.9
$\text{B}_2\text{O}_3$	0 - <1
$\text{Al}_2\text{O}_3$	0 - <1.5
$\text{ZrO}_2$	0 - <2

$\geq 0\%$  by weight of at least one refining agent.

50. (new) The zinc-containing optical glass according to claim 45, wherein:

the light transmission of the glass, determined at a wavelength of 400 nm and a 25 mm specimen thickness, is at least about 0.98; and

said optical glass comprises one of an optical element and an optical filter.

51. (new) The zinc-containing optical glass according to claim 45, wherein said zinc-containing optical glass further consists of, in total, up to about 1% by weight of a refining agent.

52. (new) The zinc-containing optical glass according to claim 51, wherein:

said zinc-containing optical glass further consists of, in total, up to about 0.5% by weight of a refining agent; and

said refining agent is at least one member of the group and combinations thereof:  $\text{As}_2\text{O}_3$  and  $\text{Sb}_2\text{O}_3$ .

53. (new) The zinc-containing optical glass according to claim 45, wherein:

the total content of ZnO plus PbO is in the range of from 21% to 55% by weight; and

the total content of CaO plus SrO is in the range of from 0% to 5% by weight.

54. (new) A zinc-containing optical glass, suitable for use as an optical element, with a refractive index ( $n_d$ ) being in the range of from about 1.52 to about 1.66 and an Abbe number ( $v_d$ ) being in the range of from about 35 to about 54;

said zinc-containing optical glass consisting of, on an oxide basis, the composition of:

<u>Material</u>	<u>Percentage by weight</u>
$\text{SiO}_2$	38 - 58

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ZnO	0.3 - 42
PbO	0 - <30
sum of ZnO+PbO	20 - 55
Li <sub>2</sub> O	0 - <3
Na <sub>2</sub> O	0 - 14
K <sub>2</sub> O	0 - 12
sum of Li <sub>2</sub> O+Na <sub>2</sub> O+K <sub>2</sub> O	≥2
F	0 - 3
MgO	0 - 6
CaO	0 - <5
SrO	0 - 6
BaO	0 - <0.9
B <sub>2</sub> O <sub>3</sub>	0 - <1
Al <sub>2</sub> O <sub>3</sub>	0 - <1.5
ZrO <sub>2</sub>	0 - <2
Cs <sub>2</sub> O	0 to about 2.5;

0 to about 5% by weight of one member of the group and combinations thereof: Rb<sub>2</sub>O, La<sub>2</sub>O<sub>3</sub>, Y<sub>2</sub>O<sub>3</sub>, and GeO<sub>2</sub>;

≥0% by weight of a coloring component; and

≥0% by weight of at least one refining agent.

55. (new) The zinc-containing optical glass according to claim 54, wherein the refractive index ( $n_d$ ) is in the range of from about 1.54 to about 1.64 and the Abbe number ( $v_d$ ) is in the range of from about 40 to about 52, and said zinc-containing optical glass consists of, on an oxide basis, the composition of:

<u>Material</u>	<u>Percentage</u> <u>by weight</u>
SiO <sub>2</sub>	39 - 54
ZnO	12 - 41
PbO	6 - 22
sum of ZnO+PbO	31 - 52
Li <sub>2</sub> O	0 - <3
Na <sub>2</sub> O	0 - 13
K <sub>2</sub> O	0 - 11
sum of Li <sub>2</sub> O+Na <sub>2</sub> O+K <sub>2</sub> O	≥2
F	0 - 3
MgO	0 - 6
CaO	0 - <5
SrO	0 - 6
BaO	0 - <0.9

$B_2O_3$	0 - <1
$Al_2O_3$	0 - <1.5
$ZrO_2$	0 - <2
$Cs_2O$	0 to about 2.5;

0 to about 5% by weight of one member of the group and combinations thereof:  $Rb_2O$ ,  $La_2O_3$ ,  $Y_2O_3$ , and  $GeO_2$ ;

≥0% by weight of a coloring component; and

≥0% by weight of at least one refining agent.

56. (new) The zinc-containing optical glass according to claim 54, wherein the refractive index ( $n_d$ ) is in the range of from about 1.56 to about 1.63 and the Abbe number ( $V_d$ ) is in the range of from about 42 to about 52, and said zinc-containing optical glass consists of, on an oxide basis, the composition of:

<u>Material</u>	<u>Percentage</u>
	<u>by weight</u>
$SiO_2$	40 - 55
$ZnO$	26 - 41
$PbO$	1 - 16
sum of $ZnO+PbO$	31 - 48
$Li_2O$	0 - <3

Na <sub>2</sub> O	0 - 12
K <sub>2</sub> O	0 - 10
sum of Li <sub>2</sub> O+Na <sub>2</sub> O+K <sub>2</sub> O	≥2
F	0 - 3
MgO	0 - 6
CaO	0 - <5
SrO	0 - 6
BaO	0 - <0.9
B <sub>2</sub> O <sub>3</sub>	0 - <1
Al <sub>2</sub> O <sub>3</sub>	0 - <1.5
ZrO <sub>2</sub>	0 - <2
Cs <sub>2</sub> O	0 to about 2.5;

0 to about 5% by weight of one member of the group and combinations thereof: Rb<sub>2</sub>O, La<sub>2</sub>O<sub>3</sub>, Y<sub>2</sub>O<sub>3</sub>, and GeO<sub>2</sub>;

≥0% by weight of a coloring component; and

≥0% by weight of at least one refining agent.

57. (new) The zinc-containing optical glass according to claim 54, wherein the refractive index ( $n_d$ ) is in the range of from about 1.60 to about 1.63 and the Abbe number ( $v_d$ ) is in the range of from about 43 to about 47, and said zinc-containing optical glass consists

of, on an oxide basis, the composition of:

<u>Material</u>	<u>Percentage</u> <u>by weight</u>
SiO <sub>2</sub>	40 - 47
ZnO	32 - 41
PbO	5 - 14
sum of ZnO+PbO	40 - 48
Li <sub>2</sub> O	0 - <3
Na <sub>2</sub> O	0 - 12
K <sub>2</sub> O	0 - 10
sum of Li <sub>2</sub> O+Na <sub>2</sub> O+K <sub>2</sub> O	≥2
F	0 - 3
MgO	0 - 6
CaO	0 - <5
SrO	0 - 6
BaO	0 - <0.9
B <sub>2</sub> O <sub>3</sub>	0 - <1
Al <sub>2</sub> O <sub>3</sub>	0 - <1.5
ZrO <sub>2</sub>	0 - <2
Cs <sub>2</sub> O	0 to about 2.5;

0 to about 5% by weight of one member of the group and combinations thereof:  $\text{Rb}_2\text{O}$ ,  $\text{La}_2\text{O}_3$ ,  $\text{Y}_2\text{O}_3$ , and  $\text{GeO}_2$ ;

$\geq 0\%$  by weight of a coloring component; and

$\geq 0\%$  by weight of at least one refining agent.

58. (new) The zinc-containing optical glass according to claim 54, wherein the refractive index ( $n_d$ ) is in the range of from about 1.57 to about 1.59 and the Abbe number ( $V_d$ ) is in the range of from about 48 to about 52, and said zinc-containing optical glass consists of, on an oxide basis, the composition of:

<u>Material</u>	<u>Percentage</u> <u>by weight</u>
$\text{SiO}_2$	41 - 50
$\text{ZnO}$	30 - 40
$\text{PbO}$	0 - 1
sum of $\text{ZnO}+\text{PbO}$	31 - 41
$\text{Li}_2\text{O}$	0 - <3
$\text{Na}_2\text{O}$	0 - 11
$\text{K}_2\text{O}$	0 - 10
sum of $\text{Li}_2\text{O}+\text{Na}_2\text{O}+\text{K}_2\text{O}$	$\geq 2$
F	0 - 3



MgO	0 - 6
CaO	0 - <5
SrO	0 - 6
BaO	0 - <0.9
B <sub>2</sub> O <sub>3</sub>	0 - <1
Al <sub>2</sub> O <sub>3</sub>	0 - <1.5
ZrO <sub>2</sub>	0 - <2
Cs <sub>2</sub> O	0 to about 2.5;

0 to about 5% by weight of one member of the group and combinations thereof: Rb<sub>2</sub>O, La<sub>2</sub>O<sub>3</sub>, Y<sub>2</sub>O<sub>3</sub>, and GeO<sub>2</sub>;

≥0% by weight of a coloring component; and

≥0% by weight of at least one refining agent.

59. (new) The zinc-containing optical glass according to claim 54, wherein the light transmission of the glass, determined at a wavelength of 400 nm and a 25 mm specimen thickness, is at least about 0.98.

60. (new) The zinc-containing optical glass according to claim 54, wherein:

said zinc-containing optical glass further consists of up to about 8% by weight of a coloring component;

said coloring component is a member of the group and combinations thereof:  $\text{CuO}$ ,  $\text{Cr}_2\text{O}_3$ ,  $\text{CoO}$ ,  $\text{Fe}_2\text{O}_3$ ,  $\text{MnO}$ ,  $\text{NiO}$ , and  $\text{V}_2\text{O}_5$ ; and

said zinc-containing optical glass comprises an optical filter.

61. (new) The zinc-containing optical glass according to claim 54, wherein said zinc-containing optical glass further consists of, in total, up to about 1% by weight of a refining agent.

62. (new) The zinc-containing optical glass according to claim 61, wherein:

said zinc-containing optical glass further consists of, in total, up to about 0.5% by weight of a refining agent; and

said refining agent is at least one member of the group and combinations thereof:  $\text{As}_2\text{O}_3$  and  $\text{Sb}_2\text{O}_3$ .

63. (new) The zinc-containing optical glass according to claim 54, wherein:

the total content of  $\text{ZnO}$  plus  $\text{PbO}$  is in the range of from 21% to 55% by weight; and

the total content of  $\text{CaO}$  plus  $\text{SrO}$  is in the range of from 0% to 5% by weight.

64. (new) The zinc-containing optical glass according to claim

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54, wherein said zinc-containing optical glass comprises an optical element.